

WHAT IS CLAIMED IS  
CLAIMS:

1. A network coupler for network users in a network comprising at least two lines (1, 2), characterized in that the network coupler is formed in such a way that it is suitable for data transfer via the two lines (1, 2) of the network and for coupling out energy from the two lines (1, 2) of the network to which a terminal of a voltage source is coupled, in that the network coupler symmetrically couples energy into and/or out of the two lines (1, 2), in that the network coupler couples the data symmetrically, differentially and inductively or capacitively into and/or out of the two lines (1, 2), and in that the network coupler symmetrically terminates the two lines (1, 2).

2. A network coupler as claimed in claim 1, characterized in that the network coupler comprises a first primary coil (4; 13; 21; 32) having a first terminal which is coupled to the first line (1) of the network, and a second primary coil (5; 14; 22; 33) having a first terminal which is coupled to the second line (2) of the network, in that the two second terminals of the first primary coil (4; 13; 21; 32) and the second primary coil (5; 14; 22; 33) are interconnected at a power supply point (3; 23; 36) which supplies a power supply voltage, in that the network coupler comprises a secondary coil (5; 15; 25; 34, 35) by means of which data can be coupled into or out of the two lines (1, 2) of the network, and in that the two primary coils (4; 13; 21; 32), (5; 14; 22; 33) and the secondary coil (5; 15; 25; 34, 35) of a core (7; 12; 24; 34) are magnetically coupled together.

3. A network coupler as claimed in claim 2, characterized in that the two primary coils (4; 13; 21; 32), (5; 14; 22; 33) are formed in such a way that a current flowing through the power supply point (3; 23; 36) is divided into two equally large currents flowing in the two lines (1, 2) of the network.

4. A network coupler as claimed in claim 3, characterized in that the two primary coils (4; 13; 21; 32), (5; 14; 22; 33) consist of the same material and have the same cross-section, length and number of turns.

5. A network coupler as claimed in claim 1, characterized in that the secondary coil (5; 15; 25; 34, 35) has a higher number of turns than the primary coil (4; 13; 21; 32), (5; 14; 22; 33).

5 6. A network coupler as claimed in claim 1, characterized in that the primary coils (4; 13; 21; 32), (5; 14; 22; 33) have a number of turns of  $n = 1$ .

7. A network coupler as claimed in claim 1, characterized in that the primary coils are formed as metal strips (21, 22) which are preferably led cross-wise through the core (24).

8. A network coupler as claimed in claim 1, characterized in that a printed circuit having a two-layer plate (31) is provided on which both the two primary coils (32, 33) and the secondary coils (34, 35) are printed as conductor tracks.

9. A network user with a network coupler as claimed in ~~any one of claims 1 to 8~~<sup>Claim 1</sup>, characterized in that the data transferred or received by the network user in the network are coupled into or out of the two lines (1, 2) of the network by means of the network coupler, and in that the energy supply of the network user is ensured by means of the energy which is coupled out of the two lines (1, 2) of the network by the network coupler and is made available at the power supply point (3; 23; 36).

10. A network user as claimed in claim 9, characterized in that the network user is a sensor, an actuator or a control device of a vehicle.

Add B4  
Add E2